RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/520,780
Source: PCT
Date Processed by STIC: 3/20/06

ENTERED

PCT

RAW SEQUENCE LISTING DATE: 03/20/2006
PATENT APPLICATION: **US/10/520,780** TIME: 12:24:27

Input Set : **E:\425uspc.app.txt**
Output Set: **N:\CRF4\03202006\J520780.raw**

```
      4 <110> APPLICANT: Fedida, David
      5       Steele, David
      7 <120> TITLE OF INVENTION: MUTATIONS OF VOLTAGE-GATED ION CHANNELS
      8       THAT ALLOW THEM TO EXPRESS A VOLTAGE-INDEPENDENT PHENOTYPE
      9       AND AN IMPROVED METHOD TO USE THE SAME
     12 <130> FILE REFERENCE: 480102.425USPC
C--> 14 <140> CURRENT APPLICATION NUMBER: US/10/520,780
C--> 15 <141> CURRENT FILING DATE: 2005-01-10
     17 <150> PRIOR APPLICATION NUMBER: US 60/395,272
     18 <151> PRIOR FILING DATE: 2002-07-12
     20 <160> NUMBER OF SEQ ID NOS: 13
     22 <170> SOFTWARE: FastSEQ for Windows Version 4.0
     24 <210> SEQ ID NO: 1
     25 <211> LENGTH: 45
     26 <212> TYPE: DNA
     27 <213> ORGANISM: Homo sapiens
     29 <400> SEQUENCE: 1
     30 atcctccaag tcatccaact ggtccgggtg ttccaaatct tcaag                  45
     32 <210> SEQ ID NO: 2
     33 <211> LENGTH: 44
     34 <212> TYPE: DNA
     35 <213> ORGANISM: Homo sapiens
     37 <400> SEQUENCE: 2
     38 ttgaagattg gaacacccgg accagttgga tgacttggag gatg                   44
     40 <210> SEQ ID NO: 3
     41 <211> LENGTH: 33
     42 <212> TYPE: DNA
     43 <213> ORGANISM: Homo sapiens
     45 <400> SEQUENCE: 3
     46 attgccctgc ctgtggacgt catcgtctcc aac                              33
     48 <210> SEQ ID NO: 4
     49 <211> LENGTH: 33
     50 <212> TYPE: DNA
     51 <213> ORGANISM: Homo sapiens
     53 <400> SEQUENCE: 4
     54 ttggagacga tgacgtccac aggcagggca atg                              33
     57 <210> SEQ ID NO: 5
     58 <211> LENGTH: 159
     59 <212> TYPE: PRT
     60 <213> ORGANISM: Homo sapiens
     62 <400> SEQUENCE: 5
     63 Pro Tyr Phe Ile Thr Leu Gly Thr Glu Ile Ala Glu Gln Glu Gly Asn
     64  1               5                  10                  15
```

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PATENT APPLICATION: US/10/520,780 TIME: 12:24:27

Input Set : E:\425uspc.app.txt
Output Set: N:\CRF4\03202006\J520780.raw

```
65 Gln Lys Gly Glu Gln Ala Thr Ser Leu Ala Ile Leu Arg Val Ile Arg
66             20                  25                  30
67 Leu Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly
68         35                  40                  45
69 Leu Gln Ile Leu Gly Gln Thr Leu Lys Ala Ser Met Arg Glu Leu Gly
70     50                  55                  60
71 Leu Leu Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser Ser Ala
72 65                  70                  75                  80
73 Val Tyr Phe Ala Glu Ala Glu Glu Ala Glu Ser His Phe Ser Ser Ile
74                 85                  90                  95
75 Pro Asp Ala Phe Trp Trp Ala Val Val Ser Met Thr Thr Val Gly Tyr
76             100                 105                 110
77 Gly Asp Met Tyr Pro Val Thr Ile Gly Gly Lys Ile Val Gly Ser Leu
78         115                 120                 125
79 Cys Ala Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val Ile
80     130                 135                 140
81 Val Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Gly Glu
82 145                 150                 155
84 <210> SEQ ID NO: 6
85 <211> LENGTH: 160
86 <212> TYPE: PRT
87 <213> ORGANISM: Mus Musculus
89 <400> SEQUENCE: 6
90 Pro Tyr Phe Ile Thr Leu Gly Thr Glu Leu Ala Glu Lys Pro Glu Asp
91  1               5                  10                  15
92 Ala Gln Gln Gly Gln Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile
93             20                  25                  30
94 Arg Leu Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys
95         35                  40                  45
96 Gly Leu Gln Ile Leu Gly Gln Thr Leu Lys Ala Ser Met Arg Glu Leu
97     50                  55                  60
98 Gly Leu Leu Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser Ser
99 65                  70                  75                  80
100 Ala Val Tyr Phe Ala Glu Ala Asp Glu Arg Asp Ser Gln Phe Pro Ser
101                85                  90                  95
102 Ile Pro Asp Ala Phe Trp Trp Ala Val Val Ser Met Thr Thr Val Gly
103            100                 105                 110
104 Tyr Gly Asp Met Val Pro Thr Thr Ile Gly Gly Lys Ile Val Gly Ser
105        115                 120                 125
106 Leu Cys Ala Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val
107    130                 135                 140
108 Ile Val Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Gly Glu
109 145                 150                 155                 160
112 <210> SEQ ID NO: 7
113 <211> LENGTH: 161
114 <212> TYPE: PRT
115 <213> ORGANISM: Homo sapiens
117 <400> SEQUENCE: 7
118 Pro Tyr Phe Ile Thr Leu Gly Thr Asp Leu Ala Gln Gln Gln Gly Gly
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Input Set : E:\425uspc.app.txt
Output Set: N:\CRF4\03202006\J520780.raw

```
119  1               5                  10                  15
120 Gly Asn Gly Gln Gln Gln Gln Ala Met Ser Phe Ala Ile Leu Arg Ile
121             20                  25                  30
122 Ile Arg Leu Val Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser
123         35                  40                  45
124 Lys Gly Leu Gln Ile Leu Gly His Thr Leu Arg Ala Ser Met Arg Glu
125     50                  55                  60
126 Leu Gly Leu Leu Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser
127 65                  70                  75                  80
128 Ser Ala Val Tyr Phe Ala Glu Ala Asp Glu Pro Thr Thr His Phe Gln
129                 85                  90                  95
130 Ser Ile Pro Asp Ala Phe Trp Trp Ala Val Val Thr Met Thr Thr Val
131             100                 105                 110
132 Gly Tyr Gly Asp Met Lys Pro Ile Thr Val Gly Gly Lys Ile Val Gly
133         115                 120                 125
134 Ser Leu Cys Ala Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro
135     130                 135                 140
136 Val Ile Val Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Asn
137 145                 150                 155                 160
138 Glu
142 <210> SEQ ID NO: 8
143 <211> LENGTH: 157
144 <212> TYPE: PRT
145 <213> ORGANISM: Homo sapiens
147 <400> SEQUENCE: 8
148 Pro Tyr Phe Ile Thr Leu Gly Thr Glu Leu Ala Glu Arg Gln Gly Asn
149  1               5                  10                  15
150 Gly Gln Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile Arg Leu Val
151             20                  25                  30
152 Arg Val Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly Leu Gln
153         35                  40                  45
154 Ile Leu Gly Gln Thr Leu Lys Ala Ser Met Arg Glu Leu Gly Leu Leu
155     50                  55                  60
156 Ile Phe Phe Leu Phe Ile Gly Val Ile Leu Phe Ser Ser Ala Val Tyr
157 65                  70                  75                  80
158 Phe Ala Glu Ala Asp Asp Pro Thr Ser Gly Phe Ser Ser Ile Pro Asp
159                 85                  90                  95
160 Ala Phe Trp Trp Ala Val Val Thr Met Thr Thr Val Gly Tyr Gly Asp
161             100                 105                 110
162 Met His Pro Val Thr Ile Gly Gly Lys Ile Val Gly Ser Leu Cys Ala
163         115                 120                 125
164 Ile Ala Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val Ile Val Ser
165     130                 135                 140
166 Asn Phe Asn Tyr Phe Tyr His Arg Glu Thr Glu Gly Glu
167 145                 150                 155
170 <210> SEQ ID NO: 9
171 <211> LENGTH: 164
172 <212> TYPE: PRT
173 <213> ORGANISM: Homo sapiens
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Input Set : **E:\425uspc.app.txt**
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175 <400> SEQUENCE: 9
176 Pro Tyr Phe Ile Thr Leu Gly Thr Glu Leu Ala Glu Gln Gln Pro Gly
177 1 5 10 15
178 Gly Gly Gly Gly Gly Gln Asn Gly Gln Gln Ala Met Ser Leu Ala Ile
179 20 25 30
180 Leu Arg Val Ile Arg Leu Val Arg Val Phe Arg Ile Phe Lys Leu Ser
181 35 40 45
182 Arg His Ser Lys Gly Leu Gln Ile Leu Gly Lys Thr Leu Gln Ala Ser
183 50 55 60
184 Met Arg Glu Leu Gly Leu Leu Ile Phe Phe Leu Phe Ile Gly Val Ile
185 65 70 75 80
186 Leu Phe Ser Ser Ala Val Tyr Phe Ala Glu Ala Asp Asn Gln Gly Thr
187 85 90 95
188 His Phe Ser Ser Ile Pro Asp Ala Phe Trp Trp Ala Val Val Thr Met
189 100 105 110
190 Thr Thr Val Gly Tyr Gly Asp Met Arg Pro Ile Thr Val Gly Gly Lys
191 115 120 125
192 Ile Val Gly Ser Leu Cys Ala Ile Ala Gly Val Leu Thr Ile Ala Leu
193 130 135 140
194 Pro Val Pro Val Ile Val Ser Asn Phe Asn Tyr Phe Tyr His Arg Glu
195 145 150 155 160
196 Thr Asp His Glu
200 <210> SEQ ID NO: 10
201 <211> LENGTH: 171
202 <212> TYPE: PRT
203 <213> ORGANISM: Drosophila melagaster
205 <400> SEQUENCE: 10
206 Pro Tyr Phe Ile Thr Leu Ala Thr Val Val Ala Glu Glu Glu Asp Thr
207 1 5 10 15
208 Leu Asn Leu Pro Lys Ala Pro Val Ser Pro Gln Asp Lys Ser Ser Asn
209 20 25 30
210 Gln Ala Met Ser Leu Ala Ile Leu Arg Val Ile Arg Leu Val Arg Val
211 35 40 45
212 Phe Arg Ile Phe Lys Leu Ser Arg His Ser Lys Gly Leu Gln Ile Leu
213 50 55 60
214 Gly Arg Thr Leu Lys Ala Ser Met Arg Glu Leu Gly Leu Leu Ile Phe
215 65 70 75 80
216 Phe Leu Phe Ile Gly Val Val Leu Phe Ser Ser Ala Val Tyr Phe Ala
217 85 90 95
218 Glu Ala Gly Ser Glu Asn Ser Phe Phe Lys Ser Ile Pro Asp Ala Phe
219 100 105 110
220 Trp Trp Ala Val Val Thr Met Thr Thr Val Gly Tyr Gly Asp Met Thr
221 115 120 125
222 Pro Val Gly Val Trp Gly Lys Ile Val Gly Ser Leu Cys Ala Ile Ala
223 130 135 140
224 Gly Val Leu Thr Ile Ala Leu Pro Val Pro Val Ile Val Ser Asn Phe
225 145 150 155 160
226 Asn Tyr Phe Tyr His Arg Glu Thr Asp Gln Glu
227 165 170

RAW SEQUENCE LISTING DATE: 03/20/2006
PATENT APPLICATION: US/10/520,780 TIME: 12:24:27

Input Set : E:\425uspc.app.txt
Output Set: N:\CRF4\03202006\J520780.raw

<210> SEQ ID NO: 11
<211> LENGTH: 163
<212> TYPE: PRT
<213> ORGANISM: Rattus norvegicus
<400> SEQUENCE: 11

```
Pro Phe Tyr Leu Glu Val Gly Leu Ser Gly Leu Ser Ser Lys Ala Ala
 1               5                  10                  15
Lys Asp Val Leu Gly Phe Leu Arg Val Val Arg Phe Val Arg Ile Leu
            20                  25                  30
Arg Ile Phe Lys Leu Thr Arg His Phe Val Gly Leu Arg Val Leu Gly
        35                  40                  45
His Thr Leu Arg Ala Ser Thr Asn Glu Phe Leu Leu Leu Ile Ile Phe
    50                  55                  60
Leu Ala Leu Gly Val Leu Ile Phe Ala Thr Met Ile Tyr Tyr Ala Glu
65                  70                  75                  80
Arg Ile Gly Ala Gln Pro Asn Asp Pro Ser Ala Ser Glu His Thr His
                85                  90                  95
Phe Lys Asn Ile Pro Ile Gly Phe Trp Trp Ala Val Val Thr Met Thr
            100                 105                 110
Thr Leu Gly Tyr Gly Asp Met Tyr Pro Gln Thr Trp Ser Gly Met Leu
        115                 120                 125
Val Gly Ala Leu Cys Ala Leu Ala Gly Val Leu Thr Ile Ala Met Pro
    130                 135                 140
Val Pro Val Ile Val Asn Asn Phe Gly Met Tyr Tyr Ser Leu Ala Met
145                 150                 155                 160
Ala Lys Gln
```

<210> SEQ ID NO: 12
<211> LENGTH: 156
<212> TYPE: PRT
<213> ORGANISM: Rattus norvegicus
<400> SEQUENCE: 12

```
Pro Tyr Tyr Val Thr Ile Phe Leu Thr Glu Ser Asn Lys Ser Val Leu
 1               5                  10                  15
Gln Phe Gln Asn Val Arg Arg Val Val Gln Ile Phe Arg Ile Met Arg
            20                  25                  30
Ile Leu Arg Ile Leu Lys Leu Ala Arg His Ser Thr Gly Leu Gln Ser
        35                  40                  45
Leu Gly Phe Thr Leu Arg Arg Ser Tyr Asn Glu Leu Gly Leu Leu Ile
    50                  55                  60
Leu Phe Leu Ala Met Gly Ile Met Ile Phe Ser Ser Leu Val Phe Phe
65                  70                  75                  80
Ala Glu Lys Asp Glu Asp Asp Thr Lys Phe Lys Ser Ile Pro Ala Ser
                85                  90                  95
Phe Trp Trp Ala Thr Ile Thr Met Thr Thr Val Gly Tyr Gly Asp Ile
            100                 105                 110
Tyr Pro Lys Thr Leu Leu Gly Lys Ile Val Gly Gly Leu Cys Cys Ile
        115                 120                 125
Ala Gly Val Leu Val Ile Ala Leu Pro Ile Pro Ile Ile Val Asn Asn
    130                 135                 140
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VERIFICATION SUMMARY DATE: 03/20/2006
PATENT APPLICATION: **US/10/520,780** TIME: 12:24:28

Input Set : **E:\425uspc.app.txt**
Output Set: **N:\CRF4\03202006\J520780.raw**

L:14 M:270 C: Current Application Number differs, Wrong Format
L:15 M:271 C: Current Filing Date differs, Replaced Current Filing Date